

CLAIMS

1. A lancing apparatus for moving a lancing element in a lancing direction from a wait position to a lancing position to lance
5 an intended portion with the lancing element, the lancing apparatus comprising:

a first member which is reciprocally movable in the lancing direction and in a retreating direction which is opposite from the lancing direction; and

10 a second member which moves along with the lancing element and performs reciprocal movement in the lancing direction and the retreating direction in accordance with the movement of the first member.

15 2. The lancing apparatus according to claim 1, wherein the first member is reciprocally movable between a first fixed position and a second fixed position;

wherein the second member performs one cycle of reciprocal movement between a third fixed position and a fourth fixed
20 position during when the first member performs one cycle of reciprocal movement between the first fixed position and the second fixed position, and the second member performs turning-back movement during when the first member moves straight between the first fixed position and the second fixed
25 position.

3. The lancing apparatus according to claim 2, wherein, the lancing element is positioned at the lancing position when the second member is positioned at the third fixed position, and the lancing element is positioned at the wait position when
5 the second member is positioned at an intermediate region between the third fixed position and the fourth fixed position.

4. The lancing apparatus according to claim 1, wherein the lancing element moves from the wait position to the lancing position
10 during when the first member moves in the retreating direction.

5. The lancing apparatus according to claim 1, wherein, when the first member performs one cycle of reciprocal movement, the second member performs one cycle of reciprocal movement
15 which is phase-shifted by 90 degrees or about 90 degrees from the first member.

6. The lancing apparatus according to claim 1, further comprising a third member for connecting the first member and the second
20 member to each other and converting movement of the first member into reciprocal movement of the second member.

7. The lancing apparatus according to claim 6, wherein the third member includes a rotation shaft whose position is fixed, a
25 first movable portion which engages the first member and is rotatable around the rotation shaft, and a second movable portion which engages the second member and is rotatable around the

rotation shaft.

8. The lancing apparatus according to claim 7, wherein the first member includes a first engagement portion for allowing the
5 rotation of the first movable portion; and

wherein the second member includes a second engagement portion for allowing the rotation of the second movable portion.

9. The lancing apparatus according to claim 8, wherein at least
10 one of the first and the second engagement portions includes an inclined portion which is inclined with respect to a perpendicular direction extending perpendicularly to the lancing and the retreating directions.

15 10. The lancing apparatus according to claim 9, wherein the inclined portion has opposite ends each of which is connected to a straight portion extending in the perpendicular direction.

11. The lancing apparatus according to claim 10, wherein, of
20 the first and the second movable portions, the movable portion which engages the inclined portion moves through the inclined portion when the lancing element moves from the wait position to the lancing position and moves through the straight portion when the lancing element moves from the lancing position in
25 the retreating direction.

12. The lancing apparatus according to claim 9, wherein the inclined portion is provided in one of the first and the second engagement portions, whereas the other one of the first and the second engagement portions entirely or mostly extends in
5 the perpendicular direction or substantially perpendicular direction.

13. The lancing apparatus according to claim 1, wherein the first member is fixed while being biased when the lancing element
10 is positioned at the wait position, and the first member is moved by the biasing force when released from the fixed state.

14. The lancing apparatus according to claim 6, wherein the third member is pivotable to convert the movement of the first
15 member into the reciprocal movement of the second member by the pivotal movement.

15. The lancing apparatus according to claim 14, wherein the third member includes a pivot shaft, a first movable portion
20 which engages the first member and is pivotable around the pivot shaft, and a second movable portion which engages the second member and is pivotable around the pivot shaft.

16. The lancing apparatus according to claim 15, wherein the
25 first member includes an engagement portion for engaging the first movable portion and controlling movement of the third member in accordance with a position where the first movable

portion engages.

17. The lancing apparatus according to claim 16, wherein the engagement portion includes an inclined portion for pivoting
5 the third member to move the second member in the lancing direction.

18. The lancing apparatus according to claim 17, wherein the engagement portion includes an additional inclined portion for
10 pivoting the third member to move the second member in the retreating direction.

19. The lancing apparatus according to claim 16, wherein the engagement portion includes a straight portion extending in
15 the lancing and the retreating directions for moving the first member in the lancing direction or the retreating direction without moving the second and the third members in the lancing and the retreating directions.

20 20. The lancing apparatus according to claim 17, further comprising a resilient member for moving the second member in the retreating direction after the intended portion is lanced with the lancing element.

25 21. The lancing apparatus according to claim 16, wherein the first movable portion includes a first and a second pins; and wherein the engagement portion includes an inclined

portion with which the first pin engages in moving the second member in the lancing direction and with which the second pin engages in moving the second member in the retreating direction.

5 22. The lancing apparatus according to claim 21, wherein the first member includes an additional engagement portion with which the second pin selectively engages when the first member moves in the retreating direction.

10 23. The lancing apparatus according to claim 22, wherein the first pin is larger in diameter than the second pin, and;
wherein the additional engagement portion has a width which is smaller than diameters of the engagement portion and the first pin.

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24. The lancing apparatus according to claim 14, wherein the first member is movable in a crossing direction crossing the lancing and the retreating directions to pivot the third member to move the second member in the retreating direction.

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25. The lancing apparatus according to claim 24, further comprising an actuating member for moving the first member;

wherein each of the first member and the actuating member includes an inclined surface, and the first member moves in
25 the crossing direction by moving the inclined surface of the actuating member along the inclined surface of the first member.

26. The lancing apparatus according to claim 25, further comprising a guide which moves along with the first member in the lancing direction or the retreating direction, and a resilient member for connecting the guide and the first member to each other and biasing the first member in the crossing direction crossing the lancing and the retreating directions.